

## Single nucleotide polymorphism (SNPS) analysis of Mu-opioid receptors (OPRM1) using denaturing high performance liquid chromatography (DHPLC) among the intravenous drug users

### ABSTRACT

**Objectives:** The genetic polymorphisms of OPRM1 among the intravenous drug users (IVDUs) and healthy controls were investigated and the risk of addiction in relation to OPRM1 was predicted. **Methods:** PCR-denaturing high performance liquid chromatography (DHPLC) method was developed to investigate SNPs in the coding regions of OPRM1 in 93 IVDUs and 100 healthy controls. Subjects were confirmed to be drug addicts and their personality was studied using validated Tridimensional Personality Questionnaires (TPQ). **Results:** Based on the results obtained, seven SNPs were detected; two of them were previously associated with addiction. Homozygous OPRM1:c.118GG and heterozygous OPRM1:c.118AG variants were found to have higher frequencies among the IVDUs and healthy controls. In addition, carriers of OPRM1:c.118G allele scored higher for novelty seeking (NS) and harm avoidance (HA) with more explorative, neurotic and uninhibited personalities. We identified a new variant of OPRM1:c.77C>G which is located at the N-terminus of the G-coupled protein receptor and possibly decreases the binding affinity of its ligands among the IVDUs. **Conclusion:** In conclusion, DHPLC allows the detection of new and existing variants of OPRM1. Genotyping of OPRM1:c.118A>G and assessment of personalities using TPQ provide valuable tools for determination of addiction risk.

**Keyword:** Mu-opioid receptor; OPRM1; Intravenous drug users (IVDUs); Denaturing high performance liquid chromatography (DHPLC)